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GUNNISON MCKAY & HODGSON, LLP  
1900 GARDEN ROAD  
SUITE 220  
MONTEREY, CA 93940

EXAMINER

RAMPURIA, SATISH

ART UNIT PAPER NUMBER

2124

DATE MAILED: 10/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/855,433

Applicant(s)

UNGAR, DAVID

Examiner

Satish S. Rampuria

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2004 (amendment).  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-3 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

***Response to Amendment***

1. This action is in response to the amendment received on 07/27/2004.
2. The objection to drawing (fig. 1) is withdrawn in view of applicant's amendment.
3. The objection to specification (abstract) is withdrawn in view of applicant's amendment.
4. Claims 4-6 are cancelled by the applicant.
5. Claims 1-3 are pending.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adi-Tabatabai, hereinafter called Adi-Tabatabai, US Patent No. 6,093,216 in view of Sumi et al., hereinafter called Sumi, US Patent No. 5,881,288.

**Per claims 1 and 3:**

Adi-Tabatabai discloses:

***- A method in a computer system for identifying at runtime a resource allocation error*** (col. 2, lines 34-35 "a method for run-time tracking of object references in computer code") ***generated by a virtual machine compiler*** (col. 4, lines 34-35 "a Java Virtual Machine that compiles the code before execution")

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- ***obtaining a resource allocation indicator at runtime*** (col. 4, lines 54-55 “The memory space 400 in FIG. 4a comprises of a run-time stack 410, registers 450, static variables (462, 468, 472) and objects (460, 464, 466, 470) on the heap”)
- ***testing at least one bit of said resource allocation indicator*** (col. 6, lines 23-24 “compiler checks to see if a variable will ever be assigned a reference value”), ***wherein said at least one bit corresponds to an allocated resource*** (col. 6, lines 8-10 “corresponding variable does not contain a reference type, then the bit is cleared”)
- ***setting said at least one corresponding bit, when said at least one corresponding bit is unset, to indicate allocation of said corresponding resource*** (col. 6, lines 26-28 “JIT compiler... inserts... instruction... will set... variable’s corresponding bit in the bit vector if the variable... store... reference type.”)
- ***unsetting said at least one corresponding bit when said corresponding resource is deallocated*** (col.6, lines 29-32 “JIT compiler... insert... variable... instruction... clears... corresponding bit in the bit vector”)

Adi-Tabatabai does not explicitly disclose halting execution.

However, Sumi discloses in an analogous computer system with halting execution (col. 19, line 39 “Execution halted after execution of Line YYY”).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method for halting execution as taught by Sumi into the method for run time tracking of objects as taught by Adi-Tabatabai. The modification would

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be obvious because of one of ordinary skill in the art would be motivated to halt the program execution in debugging and optimization of program as suggested by Sumi (col. 1, lines 5-15).

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Adi-Tabatabai in view of Beadle et al., hereinafter called Beadle, US Patent No. 6,321,377.

**Per claim 2:**

The rejection of claim 1 is incorporated, and further, Adi-Tabatabai does not explicitly disclose generating an error condition when said at least one bit is set.

However, Beadle disclose in an analogous computer system exceptions generated during an execution (Abstract, "handling exceptions generated during an execution of instructions... exception is detected.... exception results from the execution of the instructions, wherein the exception has a location within the instructions"). A bit must be set if the exception is generated.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the method of handling exceptions generated as taught by Beadle into the combination system of method run time tracking of objects and halting execution as taught by Adi-Tabatabai and Sumi. The modification would be obvious because of one of ordinary skill in the art would be motivated to generate error condition to efficiently debug the program as suggested by Beadle (col. 2, lines 17-32).

***Response to Arguments***

9. Applicant's arguments with respect to claim 1 have been considered but they are not persuasive.

In the remarks, the applicant has argued that:

- (i) For claim 1, applicant's argues that Sumi teaches halting execution in response to a specifically entered Line YYY is not analogous, or in any way similar to, "halting execution if said at least one corresponding bit of said resource allocation indicator is set" as recited in claim 1.

Examiner's response:

- (i) Regarding claim 1, it is noted that the rejection clearly points out where Adi-Tabatabai and Sumi teach the claimed features. However, halting execution is taught by Sumi on col. 19, lines 39-40, in addition, Line YYY represents the line number of execution to be halted on the line (col. 19, lines 40-42 and figs. 3B, 9A, 9B, 10, 11 and related discussion).

Applicant only makes general allegations and does not point out any errors in the rejection. Rather, in response to applicant's arguments against the references individually, one cannot show nonobviousness by using references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Therefore, the rejection is proper and maintained herein.

***Conclusion***

**10. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Satish S. Rampuria  
Patent Examiner  
Art Unit 2124  
10/18/2004



**ANIL KHATRI**  
**PRIMARY EXAMINER**